Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Allocation of Spectrum Below	)	ET Docket No. 94-32
5 GHz Transferred from	)	
Federal Government Use	)	

TO: The Commission

COMMENTS OF XIRCOM

Xircom, Inc. ("Xircom") hereby submits these comments in the above-referenced proceeding. Xircom is the market leader in local area network ("LAN") adapters for portable computers. Xircom is the leader in the development and manufacture of mobile networking solutions for the personal computer market. The company was the first to offer a PC Card (PCMCIA) local area network (LAN) solution and pioneered the use of the universal parallel port to connect PCs to a LAN. Xircom has the leading market share in the mobile connectivity market, having shipped over 1.5 million adapters to date.

The Commission seeks comment on "retaining future use of [the 2402-2417 MHz] band by Part 15 equipment,"[1] which includes wireless LANs. For the reasons stated below, Xircom advocates retaining the 2402-2417 MHz band for Part 15 technologies.

DISCUSSION

The Commission requests comment on the future use of the 2402-2417 MHz band by Part 15 equipment. Xircom agrees with the Commission's own determination that "reallocation of this band would jeopardize the significant private sector investment already made in developing new technologies operating under Part 15...[which would] result in loss of benefits to the public and the Federal Government."[2] That

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1 NPRM ¶ 18.

2 Report to Ronald H. Brown, Secretary, U.S. Department of Commerce, Regarding the Preliminary Spectrum Reallocation Report, ("FCC Comments"), ¶¶ 39, 51 (rel. Aug. 9, 1994).

determination should lead the Commission to reject the proposal to introduce licensed services into this portion of the 2400 MHz Industrial, Scientific, and Medical ("ISM") band by means of competitive bidding.

A. Licensed Services Cannot Coexist with the Current Users of the 2400 MHz Band.

Part 15 technologies presently share the 2400 MHz band with ISM systems, as well as with amateur radio users.[3] Part 15 technologies must accept interference from, and cause no interference to, the other users.[4] Thus, Xircom's wireless LANs and other Part 15 technologies, which operate in the 2400 MHz band, are designed to tolerate strong interfering signals.

Nonetheless, as the Commission has acknowledged in this and other proceedings, Part 15 technologies would not be able to coexist in the same band with licensed radio services.[5] Xircom's LAN products avoid interference by the use of spread spectrum frequency hopping techniques. Frequency hopping communication allows the device to find, at any given moment, an open frequency on which to transmit. The introduction of licensed services into this band would dramatically limit the amount of available spectrum in which these technologies could seek clear channels. Moreover, a licensee of frequencies in the 2402-17 MHz band, particularly one who had acquired the license at auction, would have a strong incentive to "shut down" any Part 15 technology that threatened interference to licensed operations. Spread spectrum wireless LANs, therefore, would become, for practical purposes, unusable, and an entire industry that is growing up around wireless LAN technology would be at risk.

Indeed, even the proposal to allow licensed services in the 2402-17 MHz band is having a chilling effect on the wireless LANs industry in the United States; adoption of the proposal would have a devasting effect. Entrepreneurs, manufacturers, venture capitalists and the public will not invest in developing products and services that use unlicensed frequencies if there is no assurance that the frequencies can be withdrawn so quickly by the FCC. It calls into question whether 5 GHz ISM band could be rendered

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[3] See 47 C.F.R. § 2.106 (1993) (Table of Frequency Allocations).

[4] See id. §§ 15.247, 15.249 (unlicensed, low-power devices use ISM bands on a secondary basis).

[5] FCC Comments ¶ 39; see also Amendment of Parts 2 and 15 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, NPRM, ET Docket No. 94-124, (rel. Nov. 8, 1994) at ¶ 19.

unusable for unlicensed technologies as well. The simple fact is that customers will not buy wireless products and services, in such an uncertain regulatory environment. U. S. manufacturers of wireless LANs will lose their domestic market and will be disadvantaged in the international market, since the European standard recently changed has been to use the full band from 2400 to 2483 MHz.

Moreover, it is unlikely that any new licensed service would thrive in this band, given the over 80 million microwave ovens now in use. The Commission has recognized that this would make it "extremely difficult to provide a licensed service in this band"[6] Indeed, in the NPRM, the Commission noted that the 2400 ISM band "present[s] a particularly challenging environment in which to implement new radio services. Any equipment operating in this band must use transmission schemes that are extremely robust and versatile."[7]

Xircom submits that the challenges presented by this band would be virtually insurmountable for any commercially feasible licensed service and, therefore, any revenues to be derived from auctioning licenses in this band would be minimal. For very small potential gain in both revenues and public benefit, the Commission would be jeopardizing a thriving U.S.-based, wireless LANs industry.

B. Part 15 Technologies Currently Operating in the 2402-2417 MHz Band Provide Valuable Public Services.

The Commission previously has noted the expanding range of consumer, public safety, and business services provided by technologies operating under Part 15.[8] NTIA has recently confirmed that the "critical importance of wireless systems [operating under Part 15] to the future development of the National Information Infrastructure (NII) is well recognized and supported." Indeed, it is precisely because Part 15 technologies have been such a great success that the Commission has repeatedly encouraged their continued development in this band of spectrum.[9]

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[6] Id. ¶¶ 38, 50; see also id. ¶ 37 ("this band provides the least potential for providing spectrum for new non-government services).

[7] NPRM ¶ 18.

[8] See, e.g., Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, Notice of Inquiry, 9 FCC Rcd 2175, 2176 n.14 (1994) (Part 15 devices "provide a wide variety of communications services").

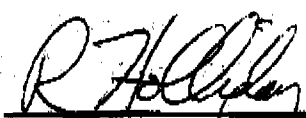
[9] See FCC Comments ¶ 13 (Commission's "attempts to encourage th[e] development [of Part 15 devices] have been successful and today millions of Part 15 spread spectrum

The Commission is well aware that: "Manufacturers have invested millions of dollars in research, development, and marketing of consumer and commercial products based on non-licensed technologies that directly benefit the public at large."[10] Xircom urges the Commission to acknowledge this investment by retaining the 2400 ISM band for unlicensed users and the many services they provide. As NTIA pointed out: "Reallocation...that disrupts these existing consumer and commercial services, or results in the loss of investment by manufacturers, can create an environment in direct conflict with the public interest."[11]

CONCLUSION

The 2402-2417 MHz band holds virtually no potential for the development of licensed services and the introduction of licensed services into this band would destroy valuable services being provided by Part 15 technologies. Accordingly, the band must not be reallocated for licensed services.

Respectfully submitted,



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devices provide a wide variety of communications services"); Amendment of Parts 2 and 15 of the Rules with Regard to the Operation of Spread Spectrum Systems, 5 FCC Rcd 4123, 4124 (1990) (Commission "encourage[s] the development ... of this exciting new family of technologies"); Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, 4 FCC Rcd 3493, 3502 (1989) ("manufacturers, if given the opportunity to use the ISM frequencies, will develop many new and practical uses of Part 15 devices").

[10] Preliminary Spectrum Reallocation Report, NTIA, 3-15 (Feb. 1994).

[11] Id.